

AVIATION

The Oldest American Aeronautical Magazine

DECEMBER 15, 1928

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The T. A. T. "Wasp" powered Ford plane, which was exhibited at the Chicago show.

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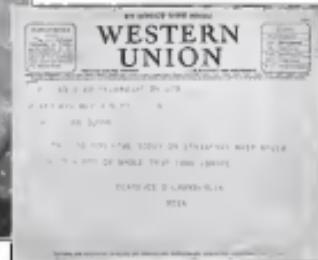
Special Features

The Wright "J-6" Series

International Aeronautical Exposition

The Dust Nuisance and Its Elimination

AVIATION PUBLISHING CORPORATION
250 WEST 57TH STREET, NEW YORK



Clarence Chamberlin (left)

with his Wasp-powered
Locust Amphibian

The "WASP" Abroad

Clarence Chamberlin, during his recent inspection tour of European airports and airways, took with him a "Wasp" powered plane. The cable received from Mr. Chamberlin tells the story of the motor's reliable performance.

The reliability exhibited by this famous flyer's "Wasp" is an inherent characteristic of Pratt & Whitney engines and has been one of the many factors in winning for them the reputation that the names "Wasp" and "Hornet" are synonymous with dependable aircraft powerplants.

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The 1929 Air Tour

In view of the fact that South America is proving more to be an equal market for planes and engines of American manufacture, it would seem altogether fitting to concentrate on the task of increasing South American sales during the year of 1929. The task could be accomplished in a number of ways, the most productive of which would be to establish a number of sales agencies below the Panama Canal. However, perhaps the universal distributor would not consider the profits incentive sufficient to warrant the expenditures necessary for an intensive demonstration and selling campaign.

As an alternative, the suggestion is made that arrangements be made for the holding of the 1929 Air Transport South America meeting of here in the United States. A fine place with a suggestion might appear to be out of the question, but as a matter of fact such a town would be considerably more accessible to the American manufacturers and the participating manufacturers.

The tour route to be flown would be around 2,000 miles length and include stops in five different South American countries. Starting from the eastern shore of the country with perhaps a low intermediate stop, would be followed by San Paulo, Rio de Janeiro, Uruguay, Buenos Aires, Argentina—Santiago, Chile—Lima, Peru. With the exception of San Paulo each of the cities mentioned is the seat of a country and predominantly the areas of each country's administrative centers. When the planes have completed their stay in Latin America they could even go on to the United States.

From the standpoint of not only increasing South American interest in American planes and engines, but creating small sales such as expedition would undoubtedly prove of inestimable value. Flying such a route as suggested would not take long and therefore, considering, a matter of days, could be spent at each stopping place, which would enable the holding of flight demonstrations and the intensive marketing of South American aircraft projects. As has been the case in America, cities visited by Air Team it is quite probable that the South American cities along the route would supply live quarters and for the waiting planes and first landing accommodations for the visiting flying personnel. As regards the matter of servicing the planes, arrangements could be made to furnish the standard airplane supply of spare parts, etc., the various stop-over cities along the route.

In short, the holding of the 1929 Art Fair is Sosa

America would undoubtably be the greatest boon for export sales that could ever take place. When one considers the sales effect and the publicity value that would be created by the arrival of some 80 or 95 American freighters moored at a South American port, one cannot really regard the idea of such a tour as impractical and out of the question.

Passenger Impressions

THE old saying that "first impressions are lasting impressions" is one well worth heeding in mind when it comes to the matter of heading up air transport traffic in the United States. With the public yet to be completely convinced of the efficiency and advantages of traveling by air, every airline operator will do well to devote considerable attention to the task of "presenting" his own particular business so that his passengers will obtain the sort of impressions that make for repeat business.

One very important step that can be taken in this aspect is that of improving the appearance of the company's field and flying personnel by enlisting them with appropriate uniforms. Several European and one or two American airline operators have put this practice into force, with the result that one sees less evidence of the traveling public concerning to a most favorable way about the businesslike way in which these airlines, over which they fly, are treated. This is particularly true of the airline which has adopted the "Euroline" uniform, who gets to Europe and patronizes a European line, usually a flight that has for the most appearance of its flight and field removed.

As yet the lysate knows relatively little about the enclosed leaves and flying performances of its trophophore plants in this country. Whether a glauc will travel 100 or 125 m. in μ h., whether it will climb 800 or 1,000 m. per mm., or whether it will land at 55 or 75 m. per h. are items which the average man today does not take into consideration when he contemplates a trip by air. If the plane looks good to him, from the standpoint of cleanliness and comfortableness, he is inclined to believe that it is safe to fly and travel with old and new in the plane's desire to ride in it, even though the plane may be dynamically perfect and pasture the faster air performances possible.

This same idea holds true regarding an oil company's personnel. If the photo and field men are going about their various tasks in gaudy-stained, or rough and tumble clothing the airline passengers immediately receive the impression that the flight is operated on a ship in bad holding waters. In other words if these men are fitted out in ship's neat holding uniforms, let's say, with a uniform cap, and a uniform, the airline is in the air frontier. In several companies passengers form the opinion that here it is an oil company company which knows its business and is well worth patronizing.

International Aeronautical Exposition

By EARL D. OSBURN

If one were to select the most outstanding general feature of the International Aeronautical Exposition held this month in Chicago, it would be the fact that it was a success. After all, never in the history of the industry have there been so many engineering conferences and meetings held in one city during the period of one week, never have so many aeronautical products been placed on display at one time, and rarely have so many persons been attracted to a show.

Under the circumstances the Show was well managed, and, of course, highly worth while. However, for those who have been attending aircraft shows since the period of the War, the Chicago Show did not produce the amount of adventure and novelty or surprise design that was looked for in it. Much of the type of "border-line" work seen by the Detroit Show held some months ago, but regardless of that fact, aeronautical designers in this country have been following one another like so many sheep, and although these meet today considerably plates of different sizes, which create the impression of a decided tendency toward standardization, there also exists a welcome lack of new and original designs.

Another item regarding the Chicago affair which, while perhaps was not detrimental in regards lessening public

exhibits consisted exclusively of made in America products.

However, the foregoing comments are in no way directed at the Show organization. Those gentlemen made the best of what they had and unquestionably obtained considerable experience of value, the results of which should be most valuable next time. With that, for this



The interior of the First Raymond Armory as it appeared while the Chicago aircraft show was in progress.



A view of the main exhibit hall of the Coliseum during the International Aeronautical Exposition.

interest was rather disappointing in numbers of the visitors, was the fact that the show was not all, or anywhere near what the name implied. In other words it was not of international scope, and outside of three or four foreign engines and one or two planes the rest of the

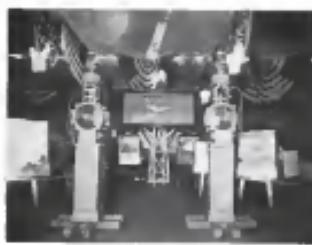
idle space in which to exhibit the great number of exhibits, "Jack" Hilding provoked a most commendable bit of work in arranging the exhibits. Due to the planned conditions, elaborate decorations were out of the question and, as a result, there was no particular distinction between exhibits. That, of course, made things rather difficult for the spectators. The only outstanding display feature was the one of instantly changing. The eye was a Spirit Model Waco suspended from the ceiling in a circular, torn position.

From the standpoint of the progress of the aeronautical industry in this country the Chicago Show gave evidence of a rather important step. At the beginning of this year there were about fourteen individuals and organizations manufacturing airplanes in this country, and many of the planes manufactured were almost identical in design and construction. In fact, in some cases only slight variations resulted in a distinction being made between the plane of one manufacturer and the plane of another. Within the last few months, however, many big and important mergers between aircraft companies have taken place. These companies are now adding to their products in an

to give their distributors and dealers complete lines of models from which the prospective buyer may choose. It should be noted that the "ragged ends" of airplane manufacturing are being taxed out the whale, and that the mergers and new capitalization of old companies will have a most decided and beneficial effect upon the industry in 1939.

Although the public visited the Show in large numbers, and were then repaid the annual out-and-about expenses, yet, as the visitors were not particularly interested in the outcome of the Show did not he in this direction. The outcome is not the selling season for airplanes any more than it is the selling season for automobiles. Exposition people claim that December being the Christmas month, is one of the worst of the year to hold a public show. The public was largely unmoved and the Show will help to raise Chicago airminded, but the public did not come to buy airplanes. Dealers and distributors did, however, come in large numbers from parts of the country, and the public came to look over the exhibits, and to make arrangements for their next purchases. The manufacturers were much more keenly interested in reaching the dealers and distributors than in reaching the general public atmosphere at the show. Many of the companies, including Fairchild, Avco, Tissue Air and Weight, gave themselves or their to their field organizations. New representatives were met and signs signed. New contracts were drawn and the old ones renewed. The following year will be hot. Many of the new factories will be built and the existing factories will be expanded, and when the flying season was over, which it was not one of the most successful ever, the public and the field traffic stream had a long time. In fact, the actual hours down at the show was within the industry and not with the Chicago public.

Although the basal varieties of design remained much the same as at Detroit and there was little originality at design, there existed a great deal of refinement in the details of design and workmanship. Details of coupling, arrangement of instrument boards and controls have been



The exhibit of the Commercial Branch, Department of Commerce, at the aircraft exposition.

hattered considerably. There was a noticeable improvement in the listing of wings to fuselage and in general appearance the plane gave evidence of being more finished.

Due to the very large number of planes at the show it is impossible to give detailed descriptions, or even to mention the majority of those there. In fact, the whole exhibit was so large that it was rather hard to take in. It was also so scattered that even after three or four days

one found corners that had not yet been explored. The crowds circulating through the various buildings were large and a considerable proportion of these present seemed intelligently interested.

The big cabin planes such as the three-engined Ford really had long lines of people waiting to walk through and see what the interiors looked like. The open cockpit planes which had stands built up alongside, enabling people to look into the cockpits and see the controls and in-



Another view of the main hall of the Coliseum.

strument panels attracted considerably more attention than those planes whose seating had the exterior could see. A few companies such as Pitmead and Gandy, and the like, had exhibits which were very attractive to the crowd. Few of the companies had good exhibits of photographs, or stands, giving specifications and other data in relation to the planes and the company. The relatively small visitors had little chance to see the interior construction of the planes or to look at the detail workmanship. The extreme length of the planes and the details of the engines and controls shared a considerable amount of representation. One Detroit, and three were who had planes in the exhibit which had been put in a very short time they were finished.

One of the first exhibits shown was a new line of new models. The most noted exception was the Fairchild company which showed for the first time its low wing, two-seater monoplane, a new Whitworth cabin plane and the new Waco powered cabin plane. The Wright company also made the show the occasion for the first public display of my new line of engines. The Mason Aircraft showed the Minneapolis and the Monogram, both of them new types, and the American Aircraft showed two new types, the Monocoupe, the Cub and new types, but these types are evidence, however, of the industry's desire to make a national show, held in the nation, the occasion for a display of near year's models.

In the line of design there were comparatively few engines in detail or in general conception. Among the exceptions to this statement was the combined six and wheel exhibited by Aerital Service of Minneapolis, and the combination wing slab disks and semiphenix gear shown by Butler. There were many motors floating about, and other small parts that are to be brought out in the paragraphs to come, but at least at least some of them will be half as big as the aeronautics.

The majority of the engines at the show are still manufacturing only one type of plane. This is partly due to the large number of small concerns exhibiting and it is probable that out of the total production of planes the majority are now built by concerns who build more than

(Continued on page 2000)

The Wright "J-6" Series

Wright Aeronautical Corp. Introduces Three "New Whirlwind" Models to Cover Wide Range of Requirements

In order to complete its line of aircraft engines and provide power plants to cover a wide range of requirements, the Wright Aeronautical Corp., Paterson, N. J., has developed the "J-6" series of engines. This series consists of three "New Whirlwind" models of the four cycle, air cooled, static radial type, having five, seven and nine cylinders and developing 150, 225 and 300 h.p. to 10,000 r.p.m. The new engines have been tested and flight tested over a period of 18 months and quantity production will be started as soon as the test future.

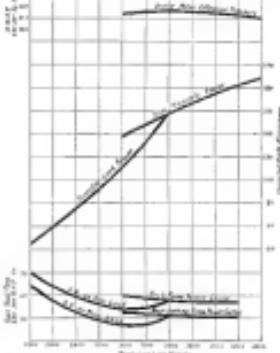
One of the outstanding features in the design of the new engines is the interchangeability of parts. Practically all of the major units comprising the power plants, with the exception of crankshafts, main bearing rods and caps, are universal. The mounting ring radius is 10.16 in., as the same as that of the "J-5" Whirlwind, making it possible to use any of the "J-6" series engines in place of a "J-5" engine provided the accessories which are not interchangeable with the accessories which, in the "J-5" engine, are all placed at the rear.

The engines are known as the "New Whirlwind Nine," the "New Whirlwind Seven," and the "New Whirlwind Five," and are designated R-975, R-770 and R-540, respectively, these numbers corresponding to the

obtained from the new seven cylinder model, and 150 h.p. from the five cylinder power plant. The seven and nine cylinder engines develop their rated output at 2,000 r.p.m., while the New Whirlwind Five has a normal speed of 1,800 r.p.m. The compression ratio of these engines is 5.3.

The dry weight of the New Whirlwind Nine is 485 lb., and 415 lb. per rated h.p., while that of the "J-5" model is about 515 lb., representing a reduction of about 30 lb.

The New Whirlwind Seven weighs 425 lb., or



A graph showing the power output and fuel consumption of the new Wright R-540 engine.

even though the new engine has been materially increased in output. The New Whirlwind Seven weighs 425 lb., or 188 lb. per rated h.p. This engine, while comparable in output to the "J-5" model, weighs 90 lb. less. The New Whirlwind Five weighs 370 lb. or 245 lb. per h.p. The overall dimensions are largely the same as the "J-5" model, which are the same for all three models. The overall length of the nine cylinder engine is 41 7/16 in., while that of the seven cylinder model is 40 23/32 in., and that of the five cylinder power plant is 40 5/8 in.

The first of the nine cylinder engines will be ready for distribution January 1 and production of the five cylinder model is expected to begin in February, 1939. In May, 1939, production is scheduled to start on the seven cylinder engine. The external finish is to be



Front view of the "New Whirlwind Five," which develops 150 h.p. This "J-6" model will be placed in production in February, 1939.

displacement in cubic inches. The standard bore is 5 in., and the stroke 5 1/2 in. Because of this 5% increase in bore over the "J-5" model, it is possible to give a piston displacement which produces 200 h.p. in the new nine cylinder engine. By the same means an output of 225 h.p. is approximately the same as that of the "J-5" engine, but

black enamel for cylinders and light gray for manganese and other aluminum parts. Exposed steel parts will be protected by a suitable non-corrosive coating.

Each engine will be subjected to acceptance tests which will consist of running in until ready for a preliminary test at 2 h.p. at 9,000 r.p.m. power, at rated speed. Following the preliminary test the engine will be disassembled for inspection and any necessary corrections. The power plant will then be reassembled and submitted to final ac-



A front quarter view of the "New Whirlwind Nine," which develops 300 h.p. and weighs but 485 lb. dry.

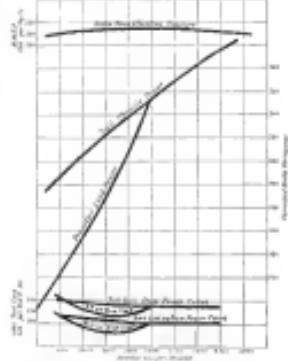
cceptance tests consisting of 56 h.p. at 9,000 rated power, at rated speed, and 54 h.p. at rated power and speed. During the final test, power, fuel and oil consumption readings will be taken. The guaranteed maximum fuel consumption for all three models is 33 lb. per h.p. hr. at rated power and speed, and the guaranteed oil consumption 62.5 lb. per h.p. hr. to be used at rated power and speed.

A distinguishing feature is the design of sheet manifolds. It is found in the reduction of a front exhaust system. This is a definite departure from previous practice in this country and prevents the use of a front exhaust manifold and the attachment of this manifold and nose cowling as standard equipment by the manufacturer. Among the advantages of this system are the reduction in production cost of the manifold and cowling, and a 12% reduction in quantity by the engine manufacturer, and the simplification of engine installation by the airplane manufacturer. At the same time both the head resistance and weight of the exhaust system is greatly reduced, as the entire unit is streamlined into the fuselage form. Each engine is provided, as standard equipment, with the front exhaust manifold, which is of the collector ring type and with this same ring being able to normally operate at any angle about the centerline, and can be rotated at the discretion of the pilot's art. All engine cowls are of the type which cover the engine completely and are completely streamlined into the fuselage.

By placing the valve actuating mechanism behind rather than in front of the cylinder it is possible to streamline the rocker boxes, which also aids in the reduction of head resistance. Grouping the accessories at the rear of the engine simplifies installation and provides protection against dirt and weather conditions. The increase in speed resulting from these modifications has been demonstrated

Aluminum alloy cylinder heads are annealed and shrunk over the steel barrel cylinders on each of the J-6 models. The cylinders are attached to the manifolds by sight and steel pinning through the cylinder flange and have manganese cooling fins. The cylinder assembly consists of four major castings of aluminum alloy which form a sturdy and compact unit. All accessory drives, comprising those for magneto, oil and fuel pump, generator and rotary compressor, are carried by the rear section. Two magneto have been used for the combustion of both a gasoline and a kerosene. The cam driving ring carrying the upper gear is cast integrally with the rear section of the manifolds, giving rigid and accurate support as well as effective lubrication to the cam. A number of cast parts are eliminated by this arrangement.

Aluminum alloy piston cross ribbed on the under side of the head and fitted with full floating hollow pins are employed. The wrist pin, which has an average diameter of 3.6 in., subject to certain tolerances, is held in place by expanding sleeves. Wire lock washers prevent stretching the wrist pin. Wire lock washers and cylinder bolts are fabricated by nit spray from the crank and lower pin bearings. Pinion heads are slightly concave in shape and that



A graph showing the fuel consumption of the "New Whirlwind" model, R-540, as field rate and heat rating, and the power curve for this engine at full throttle and on propeller load.

As is usual in Wright engines, the connecting rods are steel and forgings and consist of a steel pivot master and end and the articulated rods. Wrist pins and knuckle pins are oflocally made and the articulated rods and the connecting pins are of forged-steel, which are locked and pressed, and drawn to the big end of the master rod.

The single three, two plane crankshaft is made from alloy steel forgings and is counterbalanced to eliminate vibrations. The crankshaft is drilled to provide oil (Continued on page 2012)

The Dust Nuisance and Its Elimination

By WALTER E. BURTON

THE dust nuisance is becoming a real economic factor in most airports of any consequence, whatever. No definite information is available, but it is due to the fact that the majority of flying field visitors are disengaged in the matter of taking risks in the event of receiving a dust bath.

Everybody who has visited a flying field in dry weather knows the process involved in dusting the spectators. A plane lands and pulls up to the field edge for the purpose of discharging its quota of passengers and taking on others. It then swings about, sealing for the field again. The appearance of the propeller carries back the loose soil at first, and then even a rapid take-off will dislodge the fine dust particles. The dust particles are carried by the wind and effectively spreads it over practically everybody in the vicinity, except the pilot and his passengers, and those who take refuge behind shelter.

Should Consider Dust Problem

Since no progressive field operator desires to drive away patrons with such a disagreeable and unhealthy dusting as that, a consideration of possible methods of dust elimination ought to be a part of every airport program.

Very few efforts have been made to eliminate dust in the field of the flying public. Fortunately, some fields such as the Laddox Airport at Cincinnati, have fields which are naturally free from dust.

"We are particularly fortunate at Laddox Airport insofar as we are not faced with the dust problem," Charles E. Flack, public relations director, states. "Our airport is a river bottom field, well covered with a strong rest of blue grass. The space so far from the city limits is relatively free from dust, and the dust problem does not exist." When the city began to construct new buildings that are to be used as the municipal airport, of which Laddox Airport is a part, we will undoubtedly lose the advantage of grass.

This points to one possible solution of the dust problem, that of maintaining a good soil of blue grass, or

some other variety of grass. Of course, on some of the lower fields, or those located where the soil is not fertile, it is necessary to maintain a good growth of grass. It is true, also, that a great many机场 fields are dusty with time.

Henry H. Lee, chief of the airport section of the Department of Commerce, says that, in general, the problem of dust control on airport landing areas is being handled either by the growth of a tough sod on the landing area, or by periodic applications of road oil. The latter method is being used by a number of airports located in arid regions where the growth of a sod is necessary, but would be probably unnecessary in the case of a landing area which is to be used for aircraft maintenance or for aircraft storage. A memorandum for airport use has been prepared by the Department of Agriculture. It reads, in part, as follows:

"There is no soil grass or mixture of grasses that can be expected to produce satisfactory turf at a landing field for airports in all parts of the United States. In the northern half of the country, it is likely that a mixture composed of 80 per cent Kentucky blue grass and 20 per cent redtop will make very well for most purposes. In the southern half of the country, the mixture can be increased to good advantage, and in some of the soft soils such as are encountered in the New England states, a mixture of bent grass and redtop should give good results. In the blue grass region of Kentucky and adjoining states, there is probably nothing that will form a tougher turf than Kentucky blue grass.

In the lower northern part of the United States some timely effort perhaps will be added to the mixture to advantage. For example, the use of a mixture of Kentucky blue grass and some other grasses, such as fescue, will be more easily adapted than Kentucky grass. On the low moist lands is the common softsoil, carpet grass which grows better results than Kentucky grass. In the arid and semi-arid sections of the United States, there are very few grasses that will grow without irrigation in the northern part of the Great Plains region, where the rainfall is not too heavy, blue grass or crested wheat grass would doubtless serve the purpose well as



Navy observation, flying and training planes on the line at Legion Field, Baltimore, Md. Note the absence of dust at this grass covered field, even though the engines of the planes are being "brought up."

anything that is available. Under irrigation, the Kentucky blue grass, or a topsoil mixture should do well from Oklahoma to the Gulf and from the Gulf to the Great Plains.

From the brief summary of the situation given above, it can be seen that practically every airport must require special attention as regards grasses that are best suited for the particular conditions.

"For quickest results the Bermuda grass should be sown at the rate of 25 to 30 lbs per acre and the mixture of Kentucky blue grass and redtop at the rate of about

anything that is available. Under irrigation, the Kentucky blue grass, or a topsoil mixture should do well from Oklahoma to the Gulf and from the Gulf to the Great Plains. From the brief summary of the situation given above, it can be seen that practically every airport must require special attention as regards grasses that are best suited for the particular conditions.

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the elimination of the dust nuisance are being considered, and dredging will be probably used as a possible method.

Dredging has, for a long time, been largely used on harbors for the laying of sand, and it is not unusual that it has been applied to airports. Some fields have found that of front the establishment of asphalt and gasoline engines serve fairly well. One or two instances of the collecting of waste oil from all nearby garages for use on the drying area of a landing strip have been reported. This method was found to be inexpensive, for the cost of labor and fuel to obtain oil is nothing. The use of logs on which the aircraft are parked from time to time brings trampling of the field, also the subsequent dust produced after the use of "wore out" soil will be swept them if no oil had been used at all. This also holds true for heavy road oil, when a long period of time is considered.

Although oil is one of the most efficient dust layers, it has been found objectionable because of its "messy" properties, and because it is likely to injure anything that it touches. It is also a very sticky substance which has a tendency to break up and never hard, becoming a mass. In addition to this it is somewhat difficult to apply neatly. A suggested means of application is to throw a rock on a two-wheeled cart, and then to the rock a pipe terminating in another pipe parallel to the surface of the ground, which has holes drilled every such or so along its length. Oil flows out through the holes the rate being regulated

At the left are shown a number of grains of calcium chloride as they appear when first removed from the canister. At the right, the same samples are shown after exposure to the air in a fairly dry room for a period of 30 min. The grains already have attracted some of the moisture in the atmosphere and have started to dissolve

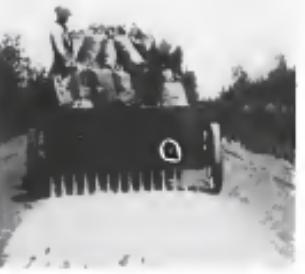
100 to 150 lbs per acre. Good results can be obtained with much less and half much more is suggested."

The use of needles before hangars is satisfactory when these are well away from the hangars before which they are started. On the other hand, a fine ground coal or creosote, durable surface, but becomes just as dusty as untreated ground. The Boston Airport at East Boston, Mass., is surfaced with coal. No attempt has been made to get rid of the dust and coal particles which cause a great deal of inconvenience and trouble, according to Lieut. C. E. Shultz, who is connected with the airport. He suggests, as a possible remedy, the oiling of the surface.

Among the other methods of dust prevention, or elimination, there remain using cement and treating with calcium chloride. Cement is the most permanent material for the reducing of dust immediately in front of hangars, but it is also expensive. It can have been restricted largely to airports financially able to afford a high first cost. Maj. John Berry, manager of the Cleveland Airport, one of the largest and most modern in the country, has given his opinion to our regard to cement and of the merits of dust prevention.

"My experience has led me to believe that in and about the areas given over to hangar sources, concrete should be used solely, and should extend out approximately 200 ft from the building line. The field beyond this, if it is covered with grass, gives fairly little dust. However, when grass has not been grown, and it is not the intention to seed grass, I have found that salinas chloride to a very great degree eliminates that without the use of any other material, except a small amount of water. One application in Cleveland has been greatly aggravated by the fact that our plane movements have multiplied much more rapidly than it has been possible to develop soil."

The Cleveland Airport is now the fastest when it comes to dust, largely because of the many places using the field, as Major Berry has pointed out. Provision for



Using a grain drift operator as a means of applying calcium chloride, takes a very large surface to be covered, by a suitable valve. The construction of such an inexpensive device would be found worthwhile where considerable oil is used.

The calcium chloride treatment, the other means of controlling the dust, is a comparatively newcomer in its application to airports. For a long time it has been known that calcium chloride is highly hygroscopic. That is, it attracts and holds water vapor from the air. It was used as a drying agent in the laboratory before being put to commercial use. Generally it comes less popularly as a dust-laying material. When applied to a dusty surface, the white finely calcium chloride immediately begins to absorb moisture from the air, and in four or five hours has completely dissolved into the dust. (Continued on page 203)

Will Bring Coast Closer to Denver

Western Air Express Plans to Extend Its Cheyenne-Pueblo Line

DENVER, COLOR.—Denver and Los Angeles will be work areas next Spring if the present plans of the Western Air Express go through. Nine hours between the two terminals will be possible for an all-cargo flight if the Cheyenne-Pueblo line in Colorado, Colo., is extended. It will make with a transcontinental route the company is contemplating across the southern part of the United States.

The San Joaquin headquarters of the company now is selecting the men and vans will pitch the Missouri River railroad. The Cheyenne-Pueblo extension would connect the two main lines at Albuquerque so an all-cargo airfield point jet to be discontinued.

The entire trip from Denver to Los Angeles would be made in daylight, probably between 6 A. M. and 4 P. M. The present route is 1,400 miles.

The trips already made have proved that with this new route we can make the distance in nine hours, said Carl Lewis W. Goss, director of transportation of the company in Denver.

The company's Los Angeles office announced that the present route for the Colorado-Wyoming run for the new service will be from Denver to San Jose by way of other cities purchased from the Federal Aircraft Co.

Twice Daily Schedule To Extend Westward

CORALIA, IND.—Three a day transcontinental air mail service through Coralia will be inaugurated soon. This was announced here by W. K. Thompson, president of the Thompson Co., Inc., operator of the Chicago-St. Paul-Coralia air line.

Improvements of the new transcontinental service await completion of lighting the Lake City, Fla., transonic point of the service. The Department of Commerce has promised to have this completed December 15, so the service can be started before the St. Christmas rush, according to Boeing officials.

Field for Aero Country Club

NEW YORK, N. Y.—An 85 acre tract of land has been purchased by the Long Island Aero Club, Inc., which plans to use this as the first of a chain of Aviation Country Club airports throughout the country. Approximately \$100,000 is to be spent in preparing the flying field, which is situated on Jerusalem Avenue and Motor Parkway about two miles south of Hicksville.

Electricity Opens Doors of Hangar

ORLANDO, CALIF.—Electricity now operates the large doors on Hangar No. 3 at the Orlando Municipal Airport. This was the last of the four hangars to be equipped with these power plant drives having been set at ends and the hangar to handle the sliding partitions or screen of a cable and chain device. The doors on the 120 by 200 ft structure weigh approximately 30 tons.

W. A. E. Sees Record Christmas Mail Rush

SAN FRANCISCO, CALIF.—The year was off to a record start for Christmas mail. Western Air Express, Inc., has announced that a fleet of 21 Douglas mail planes and two 100-ft. Golden transceivers are prepared for any emergency load requirements. The 15 Douglas planes have a 1000 ft. load capacity of plane than 17,000 lb. and could handle 800,000 pieces of mail from Los Angeles to Salt Lake City in one day.

At 6:30 a. m. today W. A. E. president in charge of traffic for Western Air Express says that schedules were set to meet the Christmas air mail as great as possible. The 100-ft. transceivers will be used to help link western States. Height of all will be marked on the chart.

Services are running late so the flight will be delayed one or two hours, with arrival time set as 10:30 P. M.

The plan may be changed for deviating to new locations for building places of obstruction light and to afford all due regard for improvements to the service.

P. A. A. Drops Key West

MIAAMI, FLA.—The Miami will implement a new flight in the last part of November to Pan American Airways planes at their fields in Havana in accordance with E. V. Chama, assistant general traffic manager of the airline firm. All mail is to be delivered to Miami and only express cargo will be sent by boats to Key West in the future.

Gulf, Wax, Field Dedicated

SPOKANE, WASH.—Reverent commercial and military employees of the Industrial Express corps took part in the dedication ceremony of the new Collier-Jones Air Center at Collier Field, Spokane, Wash. A program of cake, rolls, and passenger carrying was offered over a two day period.

Los Angeles Plans Dedication

LOS ANGELES, CALIF.—Dedication ceremonies of the Los Angeles Municipal Airport will be held on Sunday, December 16, in honor of the 25th anniversary of flight.

Mines Field to Have Williams Air School

LOS ANGELES, CALIF.—New York is to become the headquarters for The Williams Flying School, opened in a limited group of students in the early spring of 1939 according to J. E. Williams, owner and president. The school will teach those power plant drivers having been set at ends and the hangar to handle the sliding partitions or screen of a cable and chain device. The doors on the 120 by 200 ft structure weigh approximately 30 tons.

Williams is to build a large developed and constructed by Williams T. Waterhouse the plant houses a two plane, high wing monoplane designed for training purposes. The aircraft will be built in the same manner as the school, seats and saddle will be adjustable and the cockpit designed to accommodate passengers, which will fit in a seat at all times. It is planned to use a 40 by 60 ft. hangar as a transient space.

Preparing Special Map Of Spokane's Airport

SPOKANE, WASH.—A complete topographical map of Spokane's metropolitan airport at Posture will be prepared by the city engineer. When completed, the map will show all buildings, both commercial and military, locations of hangars, runways, taxiways, and all other features of the airport, including the 10,000 ft. flight of all will be marked on the chart.

Services are running late so the flight will be delayed one or two hours, with arrival time set as 10:30 P. M.

The plan may be changed for deviating to new locations for building places of obstruction light and to afford all due regard for improvements to the service.

Record Air Mail Load Sent from Louisville

LOUISVILLE, KY.—The largest shipment of air mail ever sent from Louisville in the last year was sent yesterday to Pan American Airways planes at their fields in Havana in accordance with E. V. Chama, assistant general traffic manager of the airline firm. All mail is to be delivered to Miami and only express cargo will be sent by boats to Key West in the future.

Erect Purison Hangar in South

ST. PETERSBURG, FLA.—Reverent fathers of the Collier-Jones Corp. of Orlando, Fla. are here supervising the erection of a hangar for the lady airplane which was built in the hills in front of Orlando in January. St. Petersburg will be the winter home of the ship.

Davis Approves New Shreveport Army Site

WASHINGTON, D. C.—A 20,000 acre tract five miles east of Shreveport, La., has been approved by Secretary of War Frank P. Davis for the future home of the Third Attack Wing of the Army Air Corps.

This action was taken by Secretary Davis following recently received from the Shreveport Board of Directors the charter of Army Air Corps Field No. 1. Gen. James F. E. Fisher, Chief of Air Corps, both of whom endorsed the attachment report of the special board which had already made a thorough, general study of the area around Shreveport for the following recommendations: Edwards Air Force Base, Edwards, Calif.; Shreveport, La.; Shreveport, La.; Shreveport and North West Tex. or Atlanta, Ga. The cost of land for 20,000 acres, \$1,000,000, will be paid for airfields other than fields and airfields. The cost will be recovered over a bombing and machine-gunning range. Work on the new post will be started as soon as possible, it was appropriated by Congress. The cost of planes will be in the vicinity of \$12,000,000.

The Shreveport plan was accepted following a prolonged negotiation only in November of this year between Secretary Davis and General Fisher.

Sky View Tests Florida Route

TAMPA, FLA.—Passenger air service between this city and Jacksonville, Fla., was begun recently by Sky View Lines of Tampa. Planes will initially operate over the route to test the passengers with additional flights of the route will be made.

Another passenger service is proposed after January 1, between Tampa and Miami, Fla., and the planes will fly north. Tampa will be placed on the air route between Miami and Atlanta, Ga., and later it is proposed to extend this line further north to other Caribbean colonies.

Building Nevada Field at Reno

RENO, NEV.—"Heldred Field" is the name of the new flying school, located three miles and one-half west from Reno. It was so named by W. H. Heldred, president of the Heldred Flying Service Corp., Reno, Nev., who is not a specialist advertising and publicity campaign. Pending on the acquisition amounted to about \$10,000. The first plane, a 1937 Boeing 80, was purchased from the Civil Aeronautics Commission to supplement the regular service to Cleveland where the dispossessed was transferred to the regular San Francisco-New York route.

Colo Col Mail Record Set

NEW YORK, N. Y.—Colonel William Averell established a new air mail record during November when 12,250 ft. of air mail were carried over the Albany-Chester run. This is an increase of 2,200 ft. in the previous month of October and 2,000 ft. more than the September total.

Award Graybar Light Contracts

NEW YORK, N. Y.—Airport lighting contracts recently awarded to the Graybar Electric Co. of New York include the following: St. Louis, Mo.; Louisville, Ky.; Newark, N. J.; Newark Airport, Newark; Milwaukee, Wis.; complete equipment, Milwaukee, Wis.; complete equipment, Indianapolis, Ind.; Jacksonville, Fla.; complete equipment, Birmingham, Ala.; Atlanta, Ga.; Milwaukee, Wis.; and Toledo, Ohio, airports, complete equipment.

Orders for which partial or additional equipment has been ordered from the following airports: Portland, Ore.; Sacramento, Calif.; Salt Lake City, Utah; and Grand Rapids, Mich.

Minneapolis Field To be Improved

Plans to Spend \$250,000 to Raise Field-Chamberlain to A-1-A Class

MINNEAPOLIS, MINN.—Plans for raising Chamberlain Field, the first Minnesota-owned airport, to A-1-A class, have been submitted to the Government's standards board as A-1-A, major, have been recommended.

Cost of the work, which will probably be started in Spring, will be approximately \$250,000. It will include removal of the old and new asphalt, the old one covered over with new which will provide most of the surface for construction of an asphaltic layer. The new asphaltic layer will be 10 ft. thick, and the original asphaltic layer will consist of eight four-inch, alternating courses of light fast asphalt, insulation of lights for night landing, leveling the field to provide a smooth surface, and the installation of a lighting system for night landing, leaving the field to provide a smooth surface for the landing of a plane.

After the removal of about 600,000 cu. yds. of material comprising the old field, the field will be leveled and covered with 10 ft. of asphaltic, the amount of them 4,000 cu. yds. and 10 cu. yds. of asphaltic will be removed. Separate surveys for landing and taking off will be made. Eventually some of these surveys will be lengthened to 1,000 ft.

Complete Lighting Planned

Admiralty lights for landing the field a 24 hr. a day will be installed. A 50 ft. by 50 ft. field will be lighted and the lights have already been installed but further lighting equipment will be added.

The administration building, which will serve as a control, passenger terminal will have a 10 ft. by 10 ft. field, and lights will be installed for landing and taking off, and lighting spotters for planes.

Total cost of the 120 acre field which now comprises the airport is \$250,000. The new improvements are expected to give Minneapolis an A-1-A field, the best in the Northwest and one of the best in the country.

Incomplete Green Bay Field

GREEN BAY, WIS.—The Brown County Airport company has just announced here at the first step in the process to construct and maintain a field and a terminal building in a place such as this as the Green Bay Community Improvement Corp. to establish a complete landing field. Stock will be offered to secure \$30,000 for improvements to the tract which was donated by F. T. Thrash. A hangar will be constructed.

Akela's Governor Island Field

WASHINGTON, D. C.—Representative Collier of New York has introduced a bill calling for the establishment of an emergency landing field for aircraft at Governor Island, New York Harbor.

in their cost and the elaborateness of their fittings they fall into the class of private parts.

The engine exhibits were perhaps even more off the plane exhibits. Most of them seemed just to be there to show some new and novel aeronautic engine or development or advancement. However the Wright company display was really artfully arranged. The space was separated by a fence and a little plantation of evergreens and there was an attractive background of pictures. Though the engine themselves were not unduly abased up the whole surrounding gave an impression that here was a substantial and dignified company.

One of the most interesting features of the show was the great growth in power ratings of engines. The designer of aircraft now has a greater range of power, ranging from 30 to 500 hp, and there are no longer any important gaps to be filled. From 50 to 200 hp, there are several engines of different strokes available with the rated power very closely spaced. In the powers above 200 the Pratt & Whitney, the Wright, Curtiss, and the Jupiter engines are the only makes available, but these are simply satisfactory. It is particularly in the field under 150 hp that there is now a choice of a variety of engines by different makers. Not only is there a large number of models but there are also many from engine-to-engine, cross-over, models, equal and reversed. Some of the engines at the Show had not yet been run, and there are only a few in the low horse power class which have really stood the test of time, so that both the plane manufacturer and the ultimate buyer are somewhat at a loss to know what to do.

However, there are several engines of approximately the same power, the manufacturer of planes is in a position to design his plane and to be pretty sure that by buying he will be able to get a decent engine.

Two Engines Make Development Possible

The need for a two-seater plane of comparatively low horse power has long been evident and these new engines will make possible a great development in this direction. The Detroit Show foreshadowed this development and these were several types exhibited. A few of these were also at the Chicago Show, but on the whole the engine section has held back any great quantity production of most of the firms. Most of these two-seaters are open cockpit planes and are available in the Midwest. Milwaukee, where Ed Hedeon has been the leader in the field, has recently come putting out an open cockpit plane along with the closed cabin model. The non-seater, in contrast to the other planes in the Show is still far from standardized. The three-seater open cockpit plane is almost invariably a biplane, but when it comes to the two-seater closed cabin design, one can expect. In the two-seater class there is much originality of design and one will take the public some time to decide which type it likes best. Most of the small planes are designed to be of construction sport and school type. The standard T-P which is the most popular plane in training class is the one exception to the rule. School and sport use are fundamentally quite different and the few who would seem to have taken a wise step in this special type.

One of the few other specialized planes is the Gates-Day passenger luggage plane. This plane is designed primarily for short passenger hops and night-awing flights. It carries four passengers in an open cockpit which it may go in and out of, and is designed to meet the requirements of a mail plane and one off, other than the requirements of a cross country plane. E. H. Laird has also added a second type of plane with his new Wasp powered closed cabin biplane.

The aeronautics were arranged in a gallery surrounding

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If you did not attend the Show at Chicago and see these instruments personally, send for your free copy of this new "Aviation Instruments Catalog." It describes the line in detail.

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A WACO 10 with 283 consecutive barrel rolls in the record flight.



Ed Hedeon was chosen and directed WACO. "The chief merit of Ed is that he is one of the few men in the world who can make and sell the best self-controlled plane."

WACO sets a New World's Record!

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And yet, after this record flight, official inspection

revealed that no adjustments whatever were necessary.

His WACO was a regular stock model with more than 350 hours to its credit. Of this time, some 250 were spent making loops in which the plane was rolled more than a thousand times, not to mention hundreds of loops and spins.

Once more it is proven by performance that WACO planes, built for commercial and pleasure flying, are unsurpassed in safety, strength, and all-round utility.

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the main hall, and in two large rooms at either end of the halls. Many of the exhibitors are accustomed to exhibiting in shows of other trades and naturally experience has taught them how to make attractive displays. Most of the exhibits were mounted on stands which were to measure the size of these displays to the size of the space, and arranged in better style. The executives were more numerous than at Detroit and also there was a larger number of cheap counters showing products which had little to do with the industry. The variety and scope of



The Messerschmitt 'Kitten,' which was displayed in the Armory. This plane was equipped with a combined anti-aircraft and aerial landing gear.

the aircraft field was well demonstrated by the accuracy of designs. Designers of airports and airways had booths, and the lighting equipment and spotters of communication between airports were also displayed. Then there was a division of engine accessories running all the way from combustible forgings to spark plugs, magneto, and ignition cables. Much space was naturally taken by the fuel and lubricant companies. Raw material for planes such as steel tubing, sheetiron, wood, cloth, paints, varnishes, etc., was also displayed. Wooden parts for airplanes were given a great deal of attention, trees, logs, beams, materials, etc., but there will probably be a considerable extension of this field before the next aircraft show.

The show was the occasion for meetings and dinners of various kinds. At all times of the day and night there were several official functions going on, and many informal gatherings not scheduled in advance but equally effective. There were many old timers present who have long been connected with the industry, but there were also many new ones, from the days when the industry in which the audience has grown and changed. The officially named hotel had also been named as the official hotel for a gathering of oil men and for a gathering of amusement park men and also for the American Milk Gear Association. As a result every facility of the hotel was over-crowded and many of the meetings could not find sufficient space to accommodate those who wished to be present.

The American Chamber of Commerce meetings lasted over the course of several days. Much time was spent in deciding the future policy to expand in aeronautical industry. It was decided at a meeting that no exhibits would be accepted which were not of professional proportions and when the posters, if any, did appear, they would be in the industry. It was also decided in principle that there would be only one national show run by the Aerostation Exposition Corp. Neither the exact date nor place for the next national show were decided upon, but an interim show seemed to be favored. It seemed to be the feeling of most of those present that it would be impossible to limit the

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See the opportunities of the air far greater. The other does not possess a shadow! Who will be our Deacon, our Pioneer de Lass, our Lewis and Clark? New fields aplenty await travel and

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Two 15-mile races for 200 H.P. class or
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The exhibit of the Pratt & Whitney Aircraft Co., which was located at the south end of the Coliseum main hall

and made certain recommendations which were to be located under a prominent body of water. "Pete" Lowe of St. Louis was the principal observer. The permanent committee will consist of seven men appointed by regional districts. The recommendations suggested that schools should use licensed planes and licensed pilots as instructors, and that the planes should be inspected daily. It was also



The low-wing, open cockpit monoplane, the "Flying Dutchman", exhibited by Society Aircraft Corp.

recommended that thorough ground school be given along with flight instruction and that a minimum flying course should be least four to a private pilot's license.

The Commercial Aircraft Manufacturing Section of the Chamber under the able and patient chairmanship of J. Dan Alexander waded through a program which contained 25 different subjects for discussion. A standard form of sales agreement between manufacturers and distributors was agreed upon. A meeting of purchasing agents to be held in Wichita on January 22 was decided upon. Professor Klemm's report on the testing of airplanes as to re-



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Prompt deliveries mean satisfied customers—and more profits for the dealer. Write or wire us for more details regarding the money-making Swallow dealership.

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WICHITA, KANSAS

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It can thus be seen that there was much going on in Chicago besides what actually went on at the Coliseum. The cameras of opinion seemed to be that the Show was as well managed as could be expected and that the results were decidedly worth while. Although not many miles were made to the greatest possible use, it was felt that much had been accomplished in various ways within the industry.

The Dust Nuisance and Its Elimination

(Continued from page 128)

which is so thoroughly maintained that it can not be known about. The surface, in which it has been applied, becomes darker in color, and remains moist for several months.

The chloride is moisture. It makes moisture so that it kills bacteria upon contact. Furthermore, it will not injure the skin, or clothing, or, for that matter, any other material. Moreover, it does not burn vegetation. After it is applied, the surface remains moist for about 24 hours, after which it may dry out to a certain extent, but the moisture is regained during the night. Rain affects the treated surface but slightly.

The material may be applied by hand with the aid of an ordinary shovel, or with a special sprayer. There are available two types of sprayers, either of them suitable for flying field use. The smaller is hand operated.



A hand sprayer which will enable one man to cover a fairly large area with calcium chloride in a comparatively short space of time.

and looks like a modified wheelbarrow, and has a capacity sufficient for treating the average-sized flying field. For larger areas, a modified grain drill sprayer is obtainable. This is attached behind a truck which carries the supply of chloride.

The first application should be made preferably following the spring rains. The surface is smoothed before applying, because the material acts as a binder and any irregularities are retained. The first application should

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11 out of 13—1st place
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The Major M. Patrick Trophy Race Courses D-12 engines—1st, 2nd and 3rd places.

ALL WHIRLWIND, WASP AND TWIN-ROW WHIRLWIND, TWIN-ROW, HIGH-SPEED RACE WERE EQUIPPED WITH B. G. MICA SPARK PLUGS.



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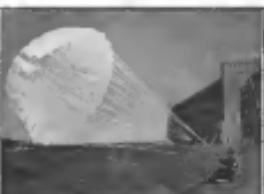
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not as easy to live for \$1,000 or double the money
the take in. Many, have you a good job in New York?
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Previously the same day as the successful British Amphibians but with certain improvements which puts the Ireland Flying Boat in a class all by itself. Of course powered with the dependable Wright Whirlwind. Seven five.

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AVIATION
December 12, 1938
operated by one of the springs. The valve springs are helical and are made from special heat treated spring steel wire.

Oil is forced to the rear of the hollow crankshaft by a pressure pump and is distributed to the bearings under pressure. Excess oil drains into a sump located in the main section of the crankcase between the bottom cylinders. From the sump, a single suction pump delivers the oil to the main tank in the plane, passing it through a strainer installed in a conical seat outside of the



Front view of the Wright R-760, the new air-cooled cylinder model of the new "J-4" series, showing the front exhaust manifold and intake cooling.

engine. By this means foreign matter is removed from the oil, and the strainer is accessible for frequent cleaning. No external oil pipes are used in the lubrication system. This feature precludes the possibility of leakage from that source and prevents excessive shifting of the oil and oil filter. Oil pressure is regulated by an adjustable valve.

Two flame arrestor Schatz magnetos at the rear of the engine furnish ignition for the two separately connected spark plugs in each cylinder. Although the magnetos normally operate simultaneously, of course the engine will operate on one magneto with but a slight reduction in speed.

A special carbureting carburetor at the rear of the engine is located in the rear section of the carburetor. It places the mixture which passes from the carburetor in the "diffuser" chamber of the carburetor. This mixture is distributed evenly to all cylinders by the General Electric rotary impeller mounted in the diffuser chamber. This positive control of the mixture, obtained through the particular design of the rotary carburetor system, eliminates the vibration which would result from irregular mixture distribution. A "heat spot" is provided above the carburetor which thoroughly vaporizes the mixture. The heat spot insures the most efficient operation of the engine when under any of the extreme operating conditions. The temperature of the heat spot can be regulated by the pilot's seat in order to obtain maximum efficiency and fuel economy under all conditions. Provision is made to obtain a supply of clean air to the carburetor at all times.

(Continued on page 2016)

AVIATION
December 12, 1938



Tex Rankin

host the meet of 100000 10.5 metered planes from New York to Miami Field, Los Angeles, Calif.

TSUNGANI EQUIPPED OXX WACO

The favorite wing walker operates and pilots Choice of groove widths and complexities

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OXX HUBCO OXX6
MENASCO WRIGHT JB
Also Made Up to Special Order
TRUNGANI FIFTON COMPANY
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Imported Trade Mark
A Complete Range of
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Drop-proof paint, black, white, aluminum or grey
Clear lacquer and acetone dope;
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Fusible acetone dope;
Waxable lacquer;
Wood and metal lacquer (for inside and outside work)

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Always in the
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Yet on the
GROUND

A 10 inch compressed air embossed range of deflection absorbers all landing shock and shock absorbers air or when needed. A positive hydraulic shock absorber. The range covers all landing rate and short and acute positions in all parts of the ship.

Safety, Economy and
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Manufactured by
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CO. of AMERICA**
San Francisco, California
Full information upon request

Approved by Department of Commerce

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All that is needed grows in Alaska. Spruce is the only wood that can be used for airplane frames—all sizes—800000000 board feet for submarine insulation. Spruce express airplane models made same day order is received. Our complete planing and can can special sizes quickly.

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THE FORRESTER HANGAR Portable by Plane

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We need no air waybill.

Indeed, a will slip over the cockpit—and the stage of the "Wire Type" it weighs 100 lbs., complete with stakes, gear and collapse poles.

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Will not crack, check or break at severe use.

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Patentees

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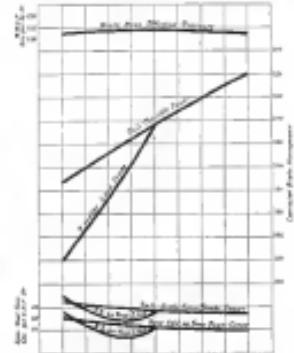
Montgomery

Texas Air Service, Great Falls, Mont.

Other territories open

THANK YOU for reading AVIATION

A 15 amper, 15 volt Eclipse generator can be installed as optional equipment on the R-975 and R-760 engines. The first 500 of the R-240 engines, however, will have no provision for generators, according to the present plans. An optional generator will be available for these engines, depending upon the demand indicated by the sale of the first 500 engines. While starting equipment is optional, an Eclipse Series 6 electric inertia starter



is recommended for the R-975 engine, an Eclipse Series 6 load inertia starting for the R-760 and an Eclipse hand start Series 1-HB-6, with a booster incorporated for the R-540.

The specifications furnished by the manufacturer are as follows:

Design	.....	.....
Number of cylinders	R-975	.....
Number of cylinders	R-760	.....
Number of cylinders	R-540	.....
Size	.....	3 in.
Stroke	.....	8½ in.
Displacement (R-975)	.....	975 cu. in.
Displacement (R-760)	.....	760 cu. in.
Displacement (R-540)	.....	540 cu. in.
Compression ratio	.....	5.0:1
Connected by at sea level (R-975)	.....	300 at 2,000 r.p.m.
Connected by at sea level (R-760)	.....	225 at 2,000 r.p.m.
Connected by at sea level (R-540)	.....	130 at 1,800 r.p.m.
Connected maximum fuel consumption	.....	55 lbs. per hr. at rated by speed
Connected maximum oil consumption	.....	0.05% per hr. at rated by speed
Length overall without starter (R-975)	.....	7'11 in.
Length overall without starter (R-760)	.....	9'2 in.
Length overall without starter (R-540)	.....	5'8 in.
Diameter overall	45 in.
Weight dry (R-975)	465 lbs.
Weight dry (R-760)	423 lbs.
Weight dry (R-540)	370 lbs.

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Last Chance to Enroll
at Low Cost

On January 1, 1939, tuition for limited commercial license course will advance from \$750 to \$1000 and transport pilot's course from \$2000 to \$2500. By enrolling now you save \$250 to \$500.

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Bennett Flying School

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You may be interested in knowing about the possibilities in aluminum strength with maximum weight obtainable by the use of men, metal and steel alloy.

We are ready to cooperate with any concern requiring special or standard type air cooled cylinders.

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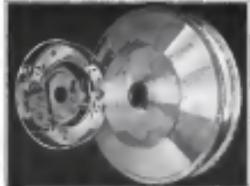
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THANK YOU for visiting AVIATION

SIDE SLIPS

By ROBERT R. OSBORN

"A lesson with complete electric cooling installation is included." This quotation is as extract from the newspaper description of a large hangar opening anniversary underwriting dinner in Paris. The point is not that one campaign is beginning to have the desired effect, or that the greater effort is added "for the first time in history" at the end of this statement.

* * *

A new play has been presented in Paris called "Landberg," written around the flying activities of that popular young man, and having characters looking very much like him. Ambassador Harrick, and other prominent officials who were connected with the celebration of his birthday, were invited to the opening. It is interesting to note that the author is trying to bring the importance of sure production and import it to Broadway, knowing that it is necessary to make the picture, borrowing episode the main theme.

* * *

Hearing that the National Advisory Committee for Aeronautics has built a special wind tunnel equipped with a refrigerating apparatus to test for frostbite, the 18-year-old Aviator is inquiring if he can get a special test run on himself. He says he wants some sort of an official document to carry around to prove in any skeptics that it is cold, which is giving his nose its brilliant red color when he comes down from a flight these days.

* * *

At the Change show the suggestion, made to one of the meetings, that the Department of Commerce require all cabin planes to be furnished with safety belts for the passengers, met with enthusiastic approval, according to newspaper reports. With all structure designed right down to a minimum as it is nowadays, it is going to be a serious matter when the more nervous and powerful passengers squeeze the longeurs all out of shape.

* * *

One airplane manufacturer is advertising in the nation of America that they ought to give their sons airplanes for Christmas. This offers no as being a special gift, but rather a reminder that when the son will be pleased with the selection, we would advise the father to state sure that the place he selects has plenty of room for parking "wheelchairs" thereon.

* * *

Mr. P. H. of Macar Carvel, Pa., wrote in the following from a Philadelphia paper with the comment that the old game dare-devils, who were famous for flights from automobiles and motorcycles to airplanes in flight, are apparently going to be very much in demand in the future for the aeronautical customs inspection service.

"The first customs inspection of an airplane in Philadelphia was made yesterday when a plane from Material Mine No. 1223, located in Penn's Valley, near Harrisburg, Chief Inspector Fred Blesser, in his deputy, J. L. Goss, came to the field, examined the plane's papers and her cargo, and then officially permitted it to land."

MORE



PLANES

WE ARE building Ford planes more quickly—but not more hurriedly.

We have increased production to three a week. This does not mean less time and attention devoted to each plane. It means that personnel and facilities have been augmented to the point where a greater production of planes can be accomplished with the same care as heretofore.

There was a strong temptation, of course, to increase production long ago. Orders would certainly have warranted it. Nearly every purchaser has had to wait for delivery of his plane—and we wish to express our profound appreciation of their good-humored patience and forbearance. Also, of their amazing loyalty to a standard of safety which originally led to their selection of the Ford plane.

But there was a very good reason for our postponing the decision to make the Ford plane in greater numbers. 1926 and 1927 have brought almost incredible progress in

aviation. There was always the possibility of a revolutionary development and improvement in airplanes practically overnight. Though the Ford plane had been designed after a searching look into what the future might bring, it was felt unwise to decide arbitrarily that anything was not subject to sudden change. To protect our customers from abnormal obsolescence, we determined to go slow on our building program.

We are convinced that the immediate future will bring refinements of present practices and principles which will make the airplane more efficient, more dependable and more economical. But we expect this change to be an evolution with which manufacturing can keep pace. Consequently we now feel buyers of Ford planes run little if any danger that the planes they buy will become obsolete before they have completed their period of usefulness—a period which we know to be *not less than four years*. The Stout Metal Airplane Company, Division of Ford Motor Company, Dearborn, Michigan.

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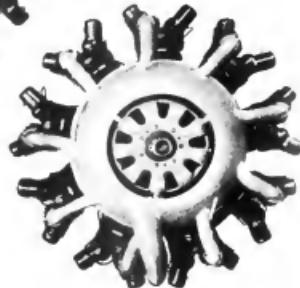
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7 cylinder
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